APPENDIX A

SELECTION AND TAILORING GUIDANCE

A.1. SCOPE

A.1.1 Scope.

This appendix provides guidance for selecting the applicable portions of specific Data Information Packets (DIPs) needed to support configuration management data requirements during the product life cycle. This appendix is not a mandatory part of this standard. The information contained herein is intended for guidance only.

A.1.2 Applicability.

This standard defines the interface requirements for configuration/technical management information utilized in the design, development, production, support, and disposal of hardware, software, and combinations thereof applicable to any product line or software tool. This information will typically be generated and maintained by the activity responsible for the particular life-cycle activity for the hardware or software "modules". Any commercial (or Government) organization which expects to have responsibility for some (or all) of these life-cycle activities should establish a database, which includes all of the applicable data elements and data of this standard. Availability of such data bases will facilitate internal interoperability and supportability among participating corporate activities [for example, functional groups, plants, divisions, or operating locations], as well as providing information to activities which also require the information, without requiring that each accessing activity utilize the same software tool. The tailoring recommendations provided in this appendix constitute guidelines for organizations as to when, and which, information might be required for the successful management of their part of the life-cycle activities for the hardware/software. The information will normally be captured in and accessed from a product information database. The Government is responsible for assuring that the database, or set of interconnected databases, is maintained throughout the product life cycle. Such information will be obtained through the access to, or delivery of, discrete groupings of related information defined in the DIPs provided in Appendix D of this standard and through the access to, or delivery of, individually-requested elements/groupings of related information resulting from "ad hoc" queries/searches by users of the data bases. The suggested tailoring wording will focus on the groupings of information provided by the DIP.

A.2. APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

A.3. DEFINITIONS

The acronyms and definitions in Section 3 of this standard apply to this appendix.

C/CR Customer/Contracted Repair – Logistical strategy where support data is required to facilitate the customer (DoD) accomplishing the support or contracting with any other activity than the manufacturer to accomplish the support.

D-B Design-Based acquisition – To define and control the detail design for the product in detail specifications and Drawings and to use those detail specifications and Drawings to buy the production units.

MR/TA Manufacturer Repair/Throw-Away – Logistical strategy where little detailed support data is required because the customer (DoD) will have NO NEED for the support data.

P-B Performance-Based acquisition – To define and control the essential performance and interface requirements for the product in performance specifications and to use those performance specifications to buy the production units.

APPENDIX A

A.4. ACQUISITION TECHNIQUES.

A.4.1 Summary recommendations for CM information.

In accordance with DoD 5000.2-R, DoD activities should acquire (by access or delivery) the minimum product information (including configuration management information) essential to effectively support product development, production, asset sustainment, modification, and disposal. The types of CM information that the Government will normally need vary according to the program and its design maturity, acquisition concept, and logistics support concept. Table A-I provides general guidelines about the types of CM information which are normally required by a Government management organization as the new development or major modification progresses through its life cycle and which would normally have to be acquired via the DIP provided in this standard. The information in this appendix is designed to facilitate the creation and the review of Statements of Work (SOW) and Contract Data Requirements Lists (CDRL) related to the provision of the CM information. . A commercial or DoD designing organization or a DoD buying organization may originate a draft Statement of Work (SOW) and Contract Data Requirements List (CDRL). They should first review Table A-I to make preliminary determinations about the CM information to be provided to the DoD buying organization before proceeding to generate the draft SOW and CDRL using the detailed tailoring information in A.4.3. A DoD or commercial organization reviewing the draft SOW and CDRL should utilize both Table A-I and paragraph A.4.3 and subparagraphs in determining the sufficiency of the proposed CM information to be provided by the designing organization. (This determination should also address the availability of the information from DoD sources.)

A.4.1.1 Generating/reviewing Statement of Work (SOW) tasks and Contract Data Requirements List (CDRL) entries.

There are four steps to determining the specific DIPs necessary to support CM information requirements and to determining the wording to be included in the applicable procurement documentation. (These would usually consist of a SOW and a CDRL for a contract with a commercial supplier or of some form of internal tasking document or memorandum of agreement between DoD organizations.) If you are not familiar with the terms used in Table A-I or need to refresh your memory, these terms are reviewed in Appendix E.

a. First, use Table A-I to identify the type of CM information [document type(s) and associated data] and how much of the information is needed. For each type of CM information, the "need designators" on the Table indicate whether it is essential (E), recommended (R), optional (O), or not recommended (blank) that delivery of the data or access to the data begin during that acquisition program phase related to the product's design maturity. Each phase's recommendations assume the prior phases data is still available and that revisions and updates to that data will be ordered. It is advisable to review the data requirements of the prior phases to assure that data is still available. This is especially advisable if the program has "skipped" one or more early phases of the life cycle or if management responsibility for the program transitions between phases. If prior phases essential or recommended data is not available, it must be procured or reprocured in the current phase.

b. Second, if deciding whether to obtain the information from a contractor, determine whether the information may be available from a Government organization source/repository or from a custodian for the document (such as an industry association). [In generating the "suggested wording" recommendations in this appendix, the normal source for most of the data covered in Table A-I is assumed to be a "contracted" commercial or Government design activity.]

c. Third, identify the selection and tailoring paragraph in the first column of Table A-I associated with the type of CM information. Review the selection and tailoring paragraph for helpful information about the uses, options, and timing for that type of CM information as you try to make final decisions about buying the information.

d. Fourth, if you decide that you will need the information, use the sample SOW, CDRL, and/or tasking document wording provided in the selection and tailoring paragraph to generate (or review) the wording of the procurement documents. Note that since the procurement contracts are normally written for the entire effort encompassing each life-cycle phase (or fiscal year production buy), rather than for each design maturity stage, the samples of wording will be provided only for the phases.

APPENDIX A

Table A-I. **Selection and tailoring guidance for CM data information DIPs**

Acquisition Life Cycle Phase:		Program Definition & Risk Reduction		Engineering & Manufacturing Development					Production, Fielding/Deployment, & Operational Support and Demilitarization & Disposal					
Product Design Maturity Stage:		System Definition		Allocated Performance Definition		Design Definition			Production, Operations and Support			Post Production Operations and Support		
Manufacturer Repair/Throw-Away (**MR/TA**), or Customer/Contracted Repair (**C/CR**)						**MR/TA**	**C/CR**		**MR/TA**	**C/CR**		**MR/TA**	**C/CR**	
Performance-based (**P-B**)/Design-based (**D-B**):		**P-B**	**D-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**
Paragraph	Type of CM information [DIP]													
A.4.3.1.1	System-level interface control Drawings [Drawing, Part, and Part-Relationship]	E	E											
	Top-level CI interface control Drawings [Drawing, Part and Part-Relationship]			E	E									
	Lower-level CI interface control Drawings [Drawing, Part and Part-Relationship]					E	E	E						
	Conceptual design Drawings & assoc lists [Drawing, Associated-List, Part, Part-Relationship]		O											
	Developmental design Drawings & associated lists [Drawing, Associated-List, Part, Part-Relationship]				O									
	Product design Drawings & associated lists [Drawing, Associated-List, Part, Part-Relationship]					R*	R*	E						
	Special inspection equipment Drawings & associated lists [Drawing, Associated-List, Part, Part-Relationship]						O	O						
	Special tooling Drawings & associated lists [Drawing, Associated-List, Part, Part-Relationship]							O						
	Revisions to previously acquired Drawings [Drawing, Associated-List, Part, Part-Relationship]	O	O	E	E	E	E	E	E	E	E	E	E	E
A.4.3.1.2	System-level performance specification [Specification, Part and Part-Relationship]	E	E											
	Top-level CI performance specifications [Specification, Part and Part-Relationship]			E	E									

APPENDIX A

Table A-I. **Selection and tailoring guidance for CM data information DIPs**

Acquisition Life Cycle Phase:		Program Definition & Risk Reduction		Engineering & Manufacturing Development					Production, Fielding/Deployment, & Operational Support and Demilitarization & Disposal					
Product Design Maturity Stage:		System Definition		Allocated Performance Definition		Design Definition			Production, Operations and Support			Post Production Operations and Support		
Manufacturer Repair/Throw-Away (**MR/TA**), or Customer/Contracted Repair (**C/CR**)						**MR/TA**	**C/CR**		**MR/TA**	**C/CR**		**MR/TA**	**C/CR**	
Performance-based (**P-B**)/Design-based (**D-B**):		**P-B**	**D-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**
Paragraph	Type of CM information [DIP]													
	Lower-level CI performance specifications [Specification, Part and Part-Relationship]					E	E	E						
	CI detail specifications [Specification, Part and Part-Relationship]							E						
	Revisions to previously acquired specs [Specification, Part and Part-Relationship]	O	O	E	E	E	E	E	E	E	E	E	E	E
A.4.3.1.3	Standardization documents [Standard]	O	O	O	O	O	O	O	O	O	O	O	O	O
	Revisions to previously acquired standardization documents [Standard]			R	R	R	R	R	R	R	R	R	R	R
A.4.3.1.4	Paperless hardware designs [Part-Model]							R						
	Revisions to previously acquired paperless hardware designs [Part-Model]							E			E			E
A.4.3.1.5	Software & software admin information [Software, Software-Documentation]					E	E	E						
	Revisions to previously acquired software & software administrative info [Software, Software-Documentation]								E			E		
A.4.3.1.6	Software support documents [Software-Documentation]						R	R	E					
	Revisions to previously acquired software support documents [Software-Documentation]						R	R	E	R	R	E		
A.4.3.2.1	General documents and Tech Manuals [General-Document and Technical-Manual]	O	O	R	R	E	E	E	E	E	E	E	E	E
	Revs to previously acquired general documents and Tech Manuals [General-Document and Technical-Manual]			E	E	E	E	E	E	E	E	E	E	E

APPENDIX A

Table A-I. **Selection and tailoring guidance for CM data information DIPs**

Acquisition Life Cycle Phase:		Program Definition & Risk Reduction		Engineering & Manufacturing Development		Production, Fielding/Deployment, & Operational Support and Demilitarization & Disposal								
Product Design Maturity Stage:		System Definition		Allocated Performance Definition		Design Definition			Production, Operations and Support			Post Production Operations and Support		
Manufacturer Repair/Throw-Away (**MR/TA**), or Customer/Contracted Repair (**C/CR**)						**MR/TA**	**C/CR**		**MR/TA**	**C/CR**		**MR/TA**	**C/CR**	
Performance-based (**P-B**)/Design-based (**D-B**):		**P-B**	**D-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**	**P-B**	**P-B**	**D-B**
Paragraph	Type of CM information [DIP]													
A.4.3.2.2	Document supplements [Document-Supplement]	O	O	E	E	E	E	E	E	E	E	E	E	E
A.4.3.3.1	Part identification [Part, Software]						R	E		R	E		R	E
A.4.3.3.2	As-built/as-delivered configuration and changes to fielded items [Part, Software, Part-Relationship]					O	E	E	O	E	E	O	E	E
A.4.3.4.1	ECPs to govt-controlled product, allocated, and/or functional baseline documents [Engineering-Change-Proposal, Notice-Of-Revision]	O	O	R	R	E	E	E	E	E	E	E	E	E
A.4.3.4.2	RFDs to govt-controlled product, allocated, and/or functional baseline documents [Request-For-Deviation]	O	O	R	R	R	R	E	R	R	E			

* Applies to Government-controlled source control Drawings

A.4.2 General.

Before specific taskings and data requirements can be written into the procurement documentation, the buying organization must carefully assess its needs and roles relative to the types of information required. This section provides guidelines to help you, as the buying organization decide which information you may need and when it might be acquired; it also provides sample wording to use in writing or reviewing SOW taskings and CDRL notes.

A.4.2.1 Overarching tailoring considerations.

In deciding about the data that you as a user/customer may want to buy, there are a number of considerations that must be addressed as you look at the overall data/information requirements for your organization. Before you begin to complete specific tailoring actions for your organization, you should consider how your organization will utilize the information and whether or not your organization is or will become the Current Document Change Authority (CDCA).

A.4.2.1.1 Do you want data/metadata or just the metadata?

Most of the fields in the DIPs provide metadata describing various essential attributes about a document/product; only a few of the fields in a few of the DIPs actually provide a document. However, the DIPs are structured so that the user will get the "access" to (or the "delivery" of) the document if the DIP ordered includes the document, unless the applicable field is "tailored out". Since, in most cases, the user will want to obtain the actual document (such as a Drawing or a specification or a software listing) along with the metadata, this should not be a problem. However, if the user desires only the metadata, these sequences must be tailored out through the "Remarks" block of the CDRL. [Note that it is not advisable to obtain only the document without the metadata since the metadata provides the relational information essential to the utilization of the document within the database.] The suggested tailoring wording provided is based on ordering the data (document) and the metadata as a complete set.

A.4.2.1.2 Is there a content Data Item Description (DID) ?

If the user wants to obtain the document, it is normally best to cite an existing "content" DID, such as DI-SDMP-81493 for program-unique specifications, to specify the format and content of the document in the CDRL. (Content DIDs, where available, are provided with the specific tailoring guidelines later in this appendix.) Specific wording in the "Remarks" block of the CDRL will invoke the applicable electronic format requirements to make the document compatible with the interface requirements of this standard. If, however, a content DID does not exist for the document the user wishes to obtain, the DID (DI-CMAN-81588) from this standard will have to be cited in the CDRL. Any details of format/content requirements (including the interface requirements provided later in this appendix) will have to be cited in the "Remarks" block of the CDRL. The suggested tailoring wording is based on the use of a content DID, where applicable.

A.4.2.1.3 Will access to the document be sufficient or do you want the document delivered?

In the past, the ordering organization usually wanted the document delivered to them; multiple physical copies (often of varying revision levels) existed at many different sites. However, in the world of interoperable electronic databases, distributed storage is common; the current version of the document is hosted in only one location and all other organizations are provided access to the document rather than storing the document on their system. Therefore, the decision by the CDCA organization to take "delivery" of the masters/originals usually is tied to the decision to also be the custodian and the hosting site for worldwide access to the document, with the attendant resource requirements such a hosting activity requires. This hosting organization must acquire the document in appropriate formats that will allow both updating the information (like WORD or AutoCAD) and access without change capability (like Adobe Acrobat). If the CDCA organization does not expect to have the resources/capabilities for such document hosting, then it will have to arrange to have another organization having such capabilities (often the document-originating organization) designated as the custodian and host for the document. The suggested CDRL tailoring wording provides samples for both "access" and "delivery" of the information.

A.4.2.1.4 Are you going to be the CDCA?

If the user ordering the document intends to become the CDCA for the document, the CDRL "Remarks" block should state that the "access" or "delivery" relates to the original of the document including all rights as the CDCA of the document. However, in some cases, the user of the document will need access to the information but will almost never become the CDCA for the document. In those cases, the CDRL "Remarks" block would state that the "access" or "delivery" relates to copies of the document (and may also provide for the procuring organization to be able to accept or reject changes that have been made to the documentation for use in items they are buying). The suggested tailoring wording will include options for these situations. However, where "delivery" of the "originals" is required, the sample wording assumes that the buying activity (CDCA) will be the custodian and will generate the revisions to the "originals"; if the contractor will be the custodian, wording about revisions should be added to the CDRL remarks.

A.4.2.1.5 What are your Data Rights?

If you are to be the CDCA, it is assumed you have full, unlimited use of the data for any legal purpose unless otherwise stated. If you are not the CDCA, your rights to use the data must be clearly stated as are any specific limitation on the use of the data. If you are going to have limited data rights, consideration should be given to added provision for assumption of full data rights if the contractor cannot meet the Government delivery needs.

A.4.2.1.6 Is the information available from a Government source?

Much of the required data may be obtained from Government, or other, sources where a CDRL is not used. If the data will be obtained from a Government source, the required DIPs should be included in the Statement of Work or other internal tasking document for that source. If a Government design activity can provide the original information, or updates to it, their inputs should be utilized to reduce the cost of acquiring the information. Utilizing the Government source of information will facilitate the availability of the information throughout the life cycle. The tailoring information will provide inputs about the availability of the various Configuration Management (CM) information elements from Government organizations.

A.4.2.1.7 Categories of DIPs.

In this standard, information transactions are provided in the form of DIPs. DIPs transmit specific product configuration management information or documents. These DIPs enable extraction of information from one database to populate another AMC-STD-2549 interface-compatible database. They include typical product information such as parts definition, product structure, engineering Drawings and associated lists, specifications, engineering change proposals, and status accounting information such as as-built/as-delivered configuration.

Data Information Packets

Products
- Part
- Software

Product Structure
- Part-Relationship

Documents

Product Definition Documents
- Drawing
- Associated-List
- Specification
- Standard
- Part-Model
- Software-Documentation
- Engineering-Change-Proposal
- Notice-Of-Revision
- Request-For-Deviation

Other Product Related Documents
- Technical-Manual
- General-Document
- Document-Supplement

A bullet indicates a separate data packet.

A.4.3 Specific selection and tailoring information and procurement document wording samples.

A.4.3.1 DIPs associated with Product Definition Documents (Drawing, Specification, Standard, Software and Software-Documentation) and their Part and Part-Relationship data.

A.4.3.1.1 Selection/ tailoring of engineering Drawings and Associated-Lists and their Part and Part-Relationship data [Drawing, Associated-List, Part, Part-Relationship DIPs].

Engineering Drawings and associated lists may be required for any product, including mission equipment, special inspection equipment, training devices, and special tooling. Engineering Drawings and associated lists are typically obtained via DIDs such as DI-DRPR-81000, -81001, -81002, -81003, -81004, and -81008 in the CDRL. If the acquisition is performance-based acquisition, the most common types of Drawings will be interface Drawings and source control Drawings. If the acquisition is design-based, many other types of Drawings may be acquired.

A.4.3.1.1.1 PD&RR phase.

During this phase, the most common types of Drawings that would be acquired, if any, are the interface Drawings for the system and for top-level hardware and software components; they would normally be obtained utilizing DI-DRPR-81002. It is also possible that the managing activity would want access to the design activity's draft conceptual Drawings (DI-DRPR-81001), if it is necessary to verify preliminary design and engineering and confirm that the technology is feasible and that the design concept has the potential to be useful in meeting a specific requirement. (see MIL-DTL-31000 for additional guidance) The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all interfaces and design information developed wholly or partly with Government funds."

CDRL Block 16 entries (ACCESS): "Copies of the [*cite specific type(s), if possible, for example.* interface, draft conceptual design] Drawings, associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example*. 3 working days] after they have been approved by the CDCA, starting [*specify appropriate milestone, for example.* with the award of this contract]. The [*cite specific type(s), for example.* interface, draft conceptual design] Drawings shall be compatible with conversion to [*specify applicable electronic format, for example.* IGES, AutoCAD, Solid Works, ProEngineer] format. Access to these [*cite specific type(s), for example.* interface, draft conceptual design] Drawings and their revisions shall be provided for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite specific type(s), for example.* interface, draft conceptual design] Drawings, associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Drawing, Associated-List, Part, and Part-Relationship DIPs of AMC-STD-2549.

CDRL Block 16 entries (DELIVERY): "Copies of the [*cite specific type(s), if possible, for example.* interface, draft conceptual design e] Drawings, associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 14 days] after they have been approved by the CDCA, starting [*specify appropriate milestone, for example*. with the award of this contract]. The [*cite specific type(s), for example.* interface, draft conceptual design] Drawings shall be delivered in [*specify applicable electronic format, for example.* IGES, AutoCAD, Solid Works, ProEngineer] format. The [*cite specific type(s), for example.* interface, draft conceptual design] Drawings, associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Drawing, Associated-List, Part, and Part-Relationship DIPs of AMC-STD-2549. "

A.4.3.1.1.2 EMD phase.

During this phase, the most common types of Drawings that would be acquired, if any, are the interface Drawings and source control Drawings for the top-level and lower-level hardware and software components; they would normally be obtained utilizing DI-DRPR-81002. It is also possible that the managing activity would want access to some/all of the design activity's product Drawings (DI-DRPR-81000) if it is necessary to evaluate a specific design approach, provide the information to produce material for test or experimentation, and for the analytical evaluation of the inherent ability of the design approach to attain the required performance (perhaps as a part of PDRs and CDRs). (See MIL-DTL-31000 for additional guidance) The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all interfaces and design information, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries (ACCESS): "Originals of designated [*cite types, for example*. interface, Government-controlled source control] Drawings, including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example*. 15 days] after completion of [*cite applicable event, for example.* FCA]. Copies of the [*cite specific type(s), if possible, for example.* product] Drawings, associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example*. 3 working days] after they have been approved by the CDCA, starting [*specify appropriate milestone, for example.* with the award of this contract]. Both prior to

and after this transfer of CDCA responsibility, copies of the Drawings, associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved by the CDCA. The Drawings shall be compatible with conversion to [*specify applicable electronic format, for example.* . IGES, AutoCAD, Solid Works, ProEngineer] format; accessible copies of the Drawings shall be compatible with conversion to [*specify applicable electronic format, for example.* IGES, AutoCAD, Solid Works, ProEngineer, CALS Type I, C4] format. Access to these Drawings and their revisions, associated metadata and Products and Product Structure data shall be provided starting [*cite applicable milestone, for example*. with the signing of this contract] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The Drawings, associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Drawing, Associated-List, Part, and Part-Relationship DIPs of AMC-STD-2549." [*Optional additional wording:* "The text of notes for each Drawing and special item/process notations applicable to the Drawing shall be included on the face of the Drawing."]

CDRL Block 16 entries (DELIVERY): "Originals of designated [*cite types, for example.* interface, Government-controlled source control] Drawings, including all rights as the CDCA, shall be delivered and placed under control of [*name of Government organization*] within [*specify period of time, for example*. 15 days] after completion of [*cite applicable event, for example.* FCA]. Copies of the [*cite specific type(s), if possible, for example.* product] Drawings, associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 15 days] after they have been approved by the CDCA, starting [*specify appropriate milestone, for example.* with the award of this contract]. The Drawings shall be delivered in [*specify applicable electronic format, for example.* IGES, AutoCAD, Solid Works, ProEngineer] format. The Drawings, associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Drawing, Associated-List, Part, and Part-Relationship DIPs of AMC-STD-2549. " [*Optional additional wording:* "The text of notes for each Drawing and special item/process notations applicable to the Drawing shall be included on the face of the Drawing."]

A.4.3.1.1.3 Production, fielding/deployment, and operational support including demilitarization and disposal.

If the Government is to be CDCA for the detail design Drawings (DI-DRPR-81000) for the product, the transfer of CDCA responsibility would normally take place during this phase, after the PCA is completed. (See MIL-DTL-31000 for additional guidance) If the Government in not going to be the CDCA for the detail design Drawings, the most common types of Drawings that would be acquired, if any, are updates to the interface Drawings and Government-controlled source control Drawings for the top-level and lower-level hardware components; they also would normally be obtained utilizing DI-DRPR-81000. It is also possible that the managing activity would want access to copies of the design activity's product Drawings (DI-DRPR-81000) for components being purchased by the Government as a part of their acquisition and/or logistics support process or if it is necessary for the Government to assess design-activity approved changes to accept or reject them for incorporation into units being purchased under this contract. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all interfaces and design information, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries (ACCESS): "Revisions of originals of designated [*cite specific types, if possible, for example.* interface, Government-controlled source control, detailed design] Drawings, including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 3 days] after approval by the Government CDCA. Copies of the Drawings [*cite specific type(s), if possible, for example.* of components being purchased/stocked/maintained by personnel other than the manufacturer], associated metadata and Products and Product Structure data shall be accessible not later than [*cite time frame, for example.* 3 working days] after they have been approved by the CDCA. The Government retains the right to accept or reject the application of the changes to units being delivered to the Government. Originals of the Drawings shall be compatible with conversion to [*specify applicable electronic format, for example.* IGES, AutoCAD, Solid Works, ProEngineer] format; accessible copies of the Drawings shall be compatible with conversion to [*specify applicable electronic format, for example* IGES, AutoCAD, Solid Works, ProEngineer.] format. Access to these Drawings and their revisions, associated metadata and Products and Product Structure data shall be provided starting [*specify applicable milestone, for example.* with the signing of this contract] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The Drawings, associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Drawing, Associated-List, Part, and Part-Relationship DIPs of AMC-STD-2549." [*Optional additional wording:* "The text of notes for each Drawing and special item/process notations applicable to the Drawing shall be included on the face of the Drawing."]

CDRL Block 16 entries (DELIVERY): "Revisions of originals of designated [*cite specific types, if possible, for example.* interface, Government-controlled source control, detailed design] Drawings, including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 3 days] after approval by the Government CDCA. {Optional additional wording if CDCA of the complete detailed design Drawing is not transferred to the Government: "Originals of the Drawings [*cite specific type(s), if possible, for example.* of components being purchased/stocked/maintained by personnel other than the manufacturer], associated metadata and Products and Product Structure data shall be delivered not later than [*cite time frame, for example.* 10 working days] after they have been approved by the CDCA, starting [*specify appropriate milestone, for example.* with the award of this contract]}. The Government retains the right to accept or reject the application of the changes to units being delivered to the Government. Copies of the Drawings shall be available in [*specify applicable electronic format, for example.* IGES, AutoCAD, Solid Works, ProEngineer] format. The Drawings, associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of Drawing, Associated-List, Part, and Part-Relationship DIPs of AMC-STD-2549." [*Optional additional wording:* "The text of notes for each Drawing and special item/process notations applicable to the Drawing shall be included on the face of the Drawing."]

A.4.3.1.2 Selection/ tailoring of performance and detail specifications and their Part and Part-Relationship data [Specification, Part, Part-Relationship DIPs] .

Performance specifications will be required for systems and for hardware and software elements of systems designated as configuration items (CIs), including mission equipment/software, support equipment/software, and training devices/software. The buying activity may also require detail specifications for some CIs for which it wants to control the detail design. System specifications (Functional Configuration Documentation or FCD) are obtained using DI-SDMP-81493. Performance specifications for development programs (Allocated Configuration Documentation or ACD) are typically generated as program-unique item, software, process, and material specifications and are obtained using DI-SDMP-81493. Performance specifications utilized for production and for operation & support (Allocated Configuration Documentation or ACD) may be obtained using either DI-SDMP-81465 or DI-SDMP-81493. Detail specifications for production and for operation & support (part of the Product Configuration Documentation or PCD) may be obtained using either DI-SDMP-81464 or DI-SDMP-81493.

A.4.3.1.2.1 PD&RR phase.

As a part of the system definition stage (or early in the allocated performance definition stage) during this phase, the system performance specification (FCD) is developed to document the system-level functional, performance and interface requirements. The specification also includes methods for verifying compliance with each requirement identified in the document. (See MIL-STD-961 appendix for additional guidance on system specifications.) The FCD normally reaches maturity and is placed under Government (CDCA) control at the end of the PD&RR phase. It is also likely that performance specifications for the top-level CIs (ACD) will be developed to document the allocation of system-level functional, performance and interface requirements to the top-level CIs below the system-level., but they normally will not reach maturity (and Government CDCA) until after the program enters the EMD phase. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all functional, performance, and interface characteristics, and all changes thereto, for the system and for the configuration items."

CDRL Block 16 entries [ACCESS]: "Originals of the [*cite specific types, if possible, for example*. system performance specification], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example. System Functional Review (*SFR)]. Both prior to and after this transfer of CDCA responsibility, copies of the [*cite specific type(s), for example*. system specification], associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA, starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the draft system specification]. Originals of the [*cite specific type(s), for example.* system specification] shall be compatible with conversion to [*specify applicable electronic format, for example.* WORD 2000. Interleaf, Quick Silver] format; accessible copies of the [*cite specific type(s), for example.* system specification] shall be compatible with conversion to [*specify applicable electronic format, for example*. Adobe Acrobat] format. Access to the [*cite specific type(s), for example*. system specification] and its revisions, associated metadata and Products and Product Structure data shall be provided for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite specific type(s), for example*. system specification], associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Originals of the [*cite specific type(s), if possible, for example.* system performance specification], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* SFR]. Originals of the [*cite specific type(s), for example.* system specification], associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 30 working days] after they have been approved by the Government in [*specify applicable electronic format, for example.* WORD 2000, Interleaf, Quick Silver] format. The [*cite specific type(s), for example.* system specification], associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549. "

A.4.3.1.2.2 EMD phase.

During the allocated performance definition stage of this phase, the top-level CI performance specifications (ACD) will be finalized. The top-level ACD normally reaches maturity and is approved and transferred to Government CDCA early in the EMD phase. During this stage in the EMD phase, the lower-level CI performance specifications (ACD) are developed to document the allocation of top-level CI functional, performance and interface requirements to subsystems, assemblies, subassemblies and components also selected as CIs. The lower-level ACD is normally placed under contractor CDCA control until development and FCA of the hosting top-level CIs has been completed; at that time, CDCA for the lower-level CI specifications is normally transferred to the Government CDCA. [Some programs/projects may decide not to have a Government CDCA for some/all of the lower-level CI performance specifications.] Both the top-level and lower-level CI specifications also include methods for verifying compliance with each requirement identified in them. During this phase, the FCD is updated if required. During the design definition stage of this phase, the product configuration documentation (PCD), including the CI detail specifications, is developed to document the design solutions that satisfy the requirements contained in the ACD. The detail specifications will also include first article and acceptance requirements, as applicable to the CI. The PCD (including the detail specifications) normally reaches maturity with the first production representative unit during the production, fielding/deployment and operational support phase. If the Government plans to control some or all of the PCD, the transfer of the CDCA responsibility will normally occur concurrent with the delivery of that first production unit. During the EMD phase, the FCD and ACD are updated as required. (See MIL-STD-961 for additional guidance on item, software, material and process performance and detail specifications.) The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all functional, performance, interface, and design characteristics, and all changes thereto, for the system and for the configuration items."

CDRL Block 16 entries [ACCESS]: "Originals of the [*cite specific type(s), if possible for example.* top-level performance specifications], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* PDR]. Both prior to and after this transfer of CDCA responsibility, copies of the [*cite specific type(s), for example.* top-level performance specifications], associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA, starting [*specify appropriate milestone, for example.* not later than 30 days after award of this contract]. Originals of the [*cite specific type(s), for example.* top-level performance specifications] shall be compatible with conversion to [*specify applicable electronic format, for example.* WORD 2000, Interleaf, Quick Silver] format; accessible copies of the [*cite specific type(s),* top-level performance specifications] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the system and top-level performance specifications and their revisions, associated metadata and Products and Product Structure data shall be provided for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The system and top-level performance specifications (and revisions), associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

"Copies of the [*cite specific type(s), if possible for example.* lower-level CI specifications] and revisions, associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA, starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first lower-level performance specification]. Accessible copies of the [*cite specific types, for example.* lower-level CI performance specifications] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*cite specific types, for example.* lower-level CI specifications] and their revisions, associated metadata and Products and Product Structure data shall be provided for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite specific types, for example.* lower-level performance specifications], associated metadata and Products and

Product Structure data shall be compatible with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Originals of the [*cite specific types, if possible, for example.* top-level performance specifications], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] and delivered within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* PDR]. Prior to this transfer of CDCA responsibility, copies of the [*cite specific types, for example.* top-level performance specifications], associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 14 working days] after they have been approved or released by the applicable CDCA, starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first top-level performance specification]. Copies shall be delivered in [*specify applicable electronic format, for example.* Adobe Acrobat] format. Originals of the [*cite specific types, for example.* top-level performance specifications] shall be delivered not later than [*cite time period, for example.* 30 working days] after they have been approved by the Government in [*specify applicable electronic format, for example.* WORD 2000, Interleaf, Quick Silver] format. The [*cite specific types, for example.* system and top-level performance specifications] and revisions, associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

"Copies of the [*cite specific types, if possible, for example.* lower-level CI specifications] and revisions, associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 14 working days] after they have been approved or released by the contractor CDCA, starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first lower-level performance specification]. Copies shall be delivered in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*cite specific types, for example.* lower-level performance specifications], associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

A.4.3.1.2.3 Production, fielding/deployment, and operational support including demilitarization and disposal.

During this phase, the PCD (including the detail specifications) normally reaches maturity with the first production representative unit. Once the detail specifications reach maturity, they will be transferred to Government CDCA control if they are needed to support acquisition and sustainment strategies throughout the remainder of the product's life cycle. During the production, fielding/deployment and operational support phase, the FCD, ACD and PCD, as applicable, are updated as required to support the procurement, manufacture and sustainment of the delivered systems as well as their related spares and support equipment. (See MIL-STD-961 for additional guidance on item, software, material and process performance and detail specifications.) The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all functional, performance, interface, and design characteristics, and all changes thereto, for the system and for the configuration items."

CDRL Block 16 entries [ACCESS]: [Use the following wording sample if the Government will control some or all of the detail specifications.] "Originals of the [*cite specific types, if possible, for example.* designated detail specifications], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* PCA]. Both prior to and after this transfer of CDCA responsibility, copies of the [*cite specific types, for example.* detail specifications] and revisions, associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA], starting [*specify appropriate milestone, for example.* not later than 10 days after contract award]. Originals of the [*cite specific types, for example.* system performance, and designated detail specifications] shall be compatible with conversion to [*specify applicable electronic format, for example.* WORD 2000, Interleaf, Quick Silver] format; accessible copies of the [*cite specific types, for example.* system, performance, and designated detail specifications] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*cite specific types, for example.* system, performance, and designated detail specifications], associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

[Use the following wording sample if the Government will not control the detail specifications.] "Copies of the [*cite specific types, if possible, for example.* system, top-level, and lower-level CI performance specifications and the designated detail specifications] and revisions, associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA.

Accessible copies of the [*cite specific types, for example.* performance specifications and designated detail specifications] and revisions shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*cite specific types, for example.* system, top-level, and lower-level performance specifications and the designated detail specifications] and their revisions, associated metadata and Products and Product Structure data shall be provided starting [specify appropriate milestone, for example. with the signing of this contract] and for a period not less than [specify period, eg. ten years] after delivery of the last production. The [*cite specific types, for example.* system, top-level, and lower-level performance specifications and designated detail specifications] and revisions, associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Originals of the [*cite specific types, if possible, for example.* designated detail specifications], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] and delivered within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* PCA]. Prior to this transfer of CDCA responsibility, copies of the [*cite specific types, for example.* designated detail specifications], associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 14 working days] after they have been approved or released by the applicable CDCA], starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first detail specification]. Originals of the [*cite specific types, for example.* designated detail specifications] shall be delivered in [*specify applicable electronic format, for example.* WORD 2000, Interleaf, Quick Silver] format. The [*cite specific types, for example.* designated detail specifications], associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

"Copies of [*cite specific types, for example.* detail specifications] and revisions not controlled by the Government, including associated metadata, shall be delivered not later than [*cite time period, for example.* 14 working days] after they have been approved or released by the applicable CDCA, starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first detail specification]. The [*cite specific types, for example.* detail specifications], associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of the Specification, Part, and Part-Relationship DIPs of AMC-STD-2549."

A.4.3.1.3 Selection/tailoring of standardization documents [Standard DIP].

Standardization documents are documents which are issued by international, Government, and industry organizations and by private corporations/companies for the purpose of standardizing parts or materials, processes, or practices across a segment of a company, industry, or country. They are called by various names by the issuing entities; they may be called specifications, standards, guidebooks, handbooks, standard practices, protocols, regulations, manuals, standardization agreements, or bulletins. Standardization documents are used during all phases of the product and project life cycle to (1) minimize cost by preventing the necessity of redesigning a part, material, process, or practice which is already in use; (2) promote interchangeability of parts and materials between assemblies; (3) promote seamless interface between organizations or software; or, (4) document "lessons learned" and promote "best practices". Depending on the type of document involved, standardization documents are typically obtained via content DIDs such as DI-SDMP-81464, -81465, -81470, -81471, -81472, -81474, -81475, -81476. If no content DID exists, other types of standardization documents may be obtained in the originating organization's format using DI-CMAN-81588. Before ordering from your contractor, determine if a suitable document exists that is already available from another source. (Note that, in some cases, it may be less expensive to have a contractor who is a "member" of the originating organization obtain the document for access by program participants.) If it is less expensive to obtain it from the originating (or custodian) organization, order a copy from that external organization rather than putting the requirement into the contract. If a new standard will have to be generated, determine if it should be a defense document (for example: defense standard, or defense specification.) rather than a contractor or industry standard; if so, it should be developed and issued with a Government identifier and with the intent that the Government will become the CDCA for the document. These standards will be generated or identified on a continuing basis during development of the system and CIs as the design evolves, and the standards must be updated throughout the life cycle of the product. There will be very little, if any, difference in the SOW taskings and in the CDRL entries from phase to phase. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document, catalog, and archive all company, industry, Government, and international standardization documents which define mandatory functional, performance, interface, and design requirements for parts, materials, processes, or practices used in/with the system and the configuration items."

CDRL Block 16 entries [ACCESS]: "Originals of the [*specify the type(s) of Government standards involved, for example.* interface standards], including all rights as the CDCA, shall be placed under control of [*name of Government organization*]

within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* PDR]. Both prior to and after this transfer of CDCA responsibility, copies of the [*specify the type(s) of Government standards involved, for example.* interface standards] and associated metadata shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA. Originals of the [*specify the type(s) of Government standards involved, for example.* interface standards] shall be compatible with conversion to [*specify applicable electronic format, for example.* WORD 2000. Interleaf, Quick Silver] format; accessible copies of the [*specify the type(s) of Government standards involved, for example.* interface standards] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*specify the type(s) of Government standards involved, for example.* interface standards] and their revisions, associated metadata and Products and Product Structure data shall be provided starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first interface standard] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*specify the type(s) of Government standards involved, for example.* interface standards]and associated metadata shall be compatible with the interface format requirements of the Standard DIP of AMC-STD-2549."

"Copies of the [*specify the type(s) of standards involved, for example.* company process standards] revisions and associated metadata shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA. Accessible copies of the [*specify the type(s) of standards involved, for example.* company process standards] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*specify the type(s) of standards involved, for example.* company process standards] and their revisions and associated metadata shall be provided for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*specify the type(s) of standards involved, for example.* company process standards]and associated metadata shall be compatible with the interface format requirements of the Standard DIP of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Originals of the [*specify the type(s) of Government standards involved, for example.* interface standards], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] and delivered within [*specify period of time, for example.* 15 days] after completion of [*cite applicable event, for example.* PDR]. Prior to this transfer of CDCA responsibility, copies of the [*specify the type(s) of standards involved, for example.* interface standards] and associated metadata shall be delivered not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA], starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first interface standard]. Originals of the [*specify the type(s) of Government standards involved, for example.* interface standards] shall be available in [*specify applicable electronic format, for example.* WORD 2000, Interleaf, Quick Silver] format. The [*specify the type(s) of Government standards involved, for example.* interface standards] and associated metadata shall be delivered in accordance with the interface format requirements of the Standard DIP of AMC-STD-2549."

"Copies of the [*specify the type(s) of standards involved, for example.* company process standards] and revisions and associated shall be delivered not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the applicable CDCA. Copies of the [*specify the type(s) of standards involved, for example.* company process standards] shall be available in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*specify the type(s) of standards involved, for example.* company process standards] and associated metadata and shall be delivered n accordance with format requirements of the Standard DIP of AMC-STD-2549."

A.4.3.1.4 Selection and tailoring associated with models [Part-Model DIP].

Paperless designs, also called electronic models, may be required for any product (including mission equipment, special inspection equipment, training devices, or special tooling,.) in lieu of engineering Drawings. One advantage to this approach is that the part structure is embedded in the design files. One disadvantage is that they cannot be reviewed without access to the commercial software with which they were created. This disadvantage usually means that it is inadvisable to obtain electronic models in the PD&RR and EMD phases unless the commercial software is available. [However, a translation between commercial tools may be possible by specifying delivery in ISO-10303, Application Protocol (AP) 203 format (Standard for the Exchange of Product Model Data [STEP]).] Selection of electronic models is not recommended unless the program has assured itself that they have the ability to use information in this format. This option is only available for commercial parts; this limitation is necessary because the DoD does not have a methodology for identifying parts without an associated Drawing or material specification. This does not restrict the ordering of electronic models in conjunction with engineering Drawings, program-unique specifications, or standardization documents. Electronic models can be used: (1) during the program definition and risk reduction phase, if the commercial software is available, to verify preliminary design and engineering and confirm that the technology is feasible and that the design concept has the potential to be useful in meeting a specific requirement; (2) during the engineering and manufacturing development phase, if the commercial software is available, to describe a specific design approach, provide the information to produce material for test or

experimentation, and for the analytical evaluation of the inherent ability of the design approach to attain the required performance; (3) during the production, fielding/deployment, and operational support phase when there is a current or future need for the Government to procure or manufacture the equipment, components, or spares and repair parts from an alternate source; or, (4) during the production, fielding/deployment, and operational support phase, after production, when the Government will maintain the equipment using organic support or will contract maintenance support from a supplier other than the original designer of the equipment. Electronic part model information is typically obtained via DI-CMAN-81588. If the decision is to buy the originals, determine that an archive copy of the appropriate commercial application software is available. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal for work in the production, fielding/deployment, operation, and support, including demilitarization and disposal phase (samples for PD&RR and EMD phases are not provided):

SOW: "The contractor shall save and archive all electronic part models, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries [ACCESS]: "Copies of [*cite types, if possible, for example.* designated electronic part models], associated metadata and Products and Product Structure data shall be accessible within [*specify period of time, for example.* 10 days] after [*cite applicable event, for example.* award of contract]. Revisions to the [*cite types, for example.* electronic part models] shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. The [*cite types, for example.* electronic part models] shall be in ISO-10303, AP 203 compatible format. Access to the [*cite types, for example.* electronic part models] and their revisions, associated metadata and Products and Product Structure data shall be provided starting [*cite appropriate milestone, such as:* with the signing of this contract] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite types, for example.* electronic part models], associated metadata and Products and Product Structure data shall be compatible with the electronic interface format requirements of Part-Model DIP of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Copies of [*cite types, if possible, for example.* designated electronic part models], associated metadata and Products and Product Structure data shall be delivered within [*specify period of time, for example.* 30 days] after [*cite applicable event, for example.* award of contract]. Revisions to the [*cite types, for example.* electronic part models], associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. The [*cite types, for example.* electronic part models] shall be in ISO-10303, AP 203 compatible format. The [*cite types, for example.* electronic part models], associated metadata and Products and Product shall be delivered in accordance with the electronic interface format requirements of DIP 3A of AMC-STD-2549."

A.4.3.1.5 Selection and tailoring of software [Software and Software-Documentation DIPs].

Software (for example., computer programs) may be required for any product, including mission equipment, special inspection equipment, training devices, special tooling, administrative processes, and record keeping. Software may also be a product in itself. (See International Standardization Organization (ISO) 9000-3). Mission equipment software is usually obtained during the latter part of EMD phase or the early part of the production fielding/deployment and operation and support phase. Other software (for example., for special inspection equipment, training devices) are usually deliverable during the production phase. Frequently, in order for software to execute, a specific software environment (including hardware and software) must be available; these requirements are usually described in a Software Support Document (for example., Software Version Description document or Computer Operation Manual) (see Software-Documentation DIP). Software may be obtained as executable (also known as compiled or object) code or as source code. Object code is one representation of software; it allows the user to execute the program and use it as it was designed to be used, but it does not allow the user to change how the software works or what it does. Source code allows the user to change how the software works or what it does; it also allows the user to automatically create object code to execute the program. Software code is typically obtained via DI-CMAN-81588 in the CDRL. Mission equipment software code (for example., embedded code) is normally delivered in electronic format as part of the, or referenced to in the, software detail specification (Specification DIP). It may also be delivered as a separate item on magnetic or optical media. If the Government decides to buy the original code, it is normally necessary to acquire an archive copy of the appropriate software development environment (and possibly the software test environment) if the Government personnel will need to be able to modify the software or if changes to the software will be accomplished by contracting the modification efforts from a supplier other than the original designer of the software. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal for work in the EMD phase, (samples for PD&RR, production, fielding/deployment, operation, and support phases are not provided):

SOW: "The contractor shall save and archive all software code, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries [ACCESS]: "Copies of [*cite specific types, if possible, for example.* designated software code], associated metadata and Products and Product Structure data shall be accessible within [*specify period of time, for example.* 10 days] after [*cite applicable event, for example.*, physical configuration audit]. Revisions to the [*cite specific types, for example.* software code], associated metadata and Products and Product Structure data shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. Access to the [*cite specific types, for example.* software code] and its revisions, associated metadata and Products and Product Structure data shall be provided starting [*specify appropriate milestone, for example.* not later than 10 days after the release/approval of the first software] and for a period not less than [*specify period, for example.* ten years] after PCA. The [*cite specific types, for example.* software code], associated metadata and Products and Product Structure data shall be compatible with the interface format requirements of the Software and Software-Documentation DIPs of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Copies of [*cite specific types, if possible, for example.* designated software code], associated metadata and Products and Product Structure data shall be delivered within [*specify period of time, for example.* 30 days] after [*cite applicable event, for example.* FCA *or* PCA]. Revisions to the [*cite specific types, for example.* software code], associated metadata and Products and Product Structure data shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* software code], associated metadata and Products and Product Structure data shall be delivered in accordance with the interface format requirements of Software and Software-Documentation DIPs of AMC-STD-2549."

A.4.3.1.6 Selection/tailoring of software support documents [Software-Documentation DIP].

Software support documents may be required for any software product, including mission equipment, special inspection equipment, training devices, special tooling, administrative processes and record keeping. Software support documents are typically obtained via DIDs such as DI-IPSC-81430, -81435, -81436, -81437, -81439, -81442, -81443, -81444, -81445, -81446, -81447, (or DI-CMAN-81588 if no other appropriate DID exists) in the CDRL. The number and type of software support documents is highly dependent upon the type of acquisition being employed. With performance-based acquisition, the most common types of documents will be those used to install, operate/use, and reproduce the software product. If the acquisition is design-based, many other types of software support documents may be acquired, particularly those required to maintain the software product.

A.4.3.1.6.1 PD&RR phase.

During this phase, the most common types of software support documents that would be acquired, if any, are the planning and concept documents for the system and for top-level hardware and software components; they would normally be obtained utilizing DI-IPSC-81427A, DI-IPSC-81429A, DI-IPSC-81430A. It is also possible that the managing activity would want access to the design activity's draft software support documents (for example., DI-IPSC-81428A, DI-IPSC-81432A, DI-IPSC-81435A, DI-IPSC-81439A), if it is necessary to verify preliminary design and engineering and confirm that the technology is feasible and that the design concept has the potential to be useful in meeting a specific requirement. The following sample SOW tasks and CDRL remarks can be used as a basis for writing or reviewing entries in a proposal:

SOW: "The contractor shall document all software support information, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries (ACCESS): "Copies of the [*cite specific types, if possible, for example.* software support plan], and their revisions and associated metadata, shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* software support plan] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to these [*cite specific types, for example.* software support plans] and their revisions and associated metadata shall be provided starting [*specify appropriate milestone, for example.* with the signing of this contract] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite specific types, for example.* software support plans] and associated metadata shall be compatible with the interface format requirements of the Software-Documentation DIP of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "Copies of the [*cite specific types, if possible, for example.* software support plan] and associated metadata shall be provided starting [*specify appropriate milestone, for example.* within 14 days of the signing of this contract]. Revisions and associated metadata shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* software support plan] shall be available in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*cite specific types, for example.* software support plans] and associated metadata shall be delivered in accordance with the interface format requirements of the Software-Documentation DIP of AMC-STD-2549."

A.4.3.1.6.2 EMD phase.

During this phase, the most common types of software support documents that would be acquired, are the draft documents related to installing, operating, maintaining and reproducing the software product for the software system; they would normally be obtained utilizing DI-IPSC-81432A through DI-QCIC-81449A. It is also possible that the managing activity would want access to the design activity's design description documents (DI-IPSC-81432A, DI-IPSC-81435A, DI-IPSC-81437A), if it is necessary to evaluate a specific design approach or for the analytical evaluation of the inherent ability of the design approach to attain the required performance (perhaps as a part of PDRs and CDRs). (See ISO 9000-3 additional guidance) The following sample SOW tasks and CDRL remarks can be used as a basis for writing or reviewing entries in a proposal: [NOTE: The following samples were written for the scenario the contractor to do most/all of the software maintenance. Government personnel who interface with the software use contractor-controlled manuals. If the Government will maintain the software, and will buy and control the originals of the manuals, then wording similar to the samples in A.4.3.1.1.2 should also be used.]

SOW: "The contractor shall document all software support information, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries (ACCESS): "Copies of the draft [*cite specific types, if possible, for example.* firmware support manuals and operators' manuals], and their revisions and associated metadata, shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* firmware support manuals and operators' manuals] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to these [*cite specific types, for example.* firmware support manuals and operators' manuals] and their revisions and associated metadata shall be provided starting [*specify appropriate milestone, for example.* not later than 30 days after the PDR] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite specific types, for example.* firmware support manuals and operators' manuals] and associated metadata shall be compatible with the interface format requirements of the Software-Documentation DIP of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "Copies of the draft [*cite specific types, if possible, for example.* firmware support manuals and operators' manuals] and associated metadata shall be delivered starting [*specify appropriate milestone, for example.* not later than 30 days after the PDR]. Revisions and associated metadata shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* firmware support manuals and operators' manuals] shall be available in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*cite specific types, for example.* firmware support manuals and operators' manuals] and associated metadata shall be delivered in accordance with the interface format requirements of the Software-Documentation DIP of AMC-STD-2549."

A.4.3.1.6.3 Production, fielding/deployment, and operational support including demilitarization and disposal.

If the Government personnel will provide the software maintenance, we would acquire Government-controlled software support documents for the software product, including information about the software development environment and the software test environment. If the original software developer is to provide software maintenance, during this phase, the most common types of documents that would be acquired, if any, are the contractor-controlled software manuals, and updates, to be used by Government personnel, although it is also possible that the Government will need to access copies of contractor support documents in order to assess design-activity approved changes to accept or reject them for incorporation into software being purchased under this contract. The number and type of software support documents that could be acquired during this phase is highly dependent upon the complexity of the software product, the amount of maintenance to be accomplished by Government personnel, and the type of acquisition, that is, performance-based vs design-based. The following sample SOW tasks and CDRL remarks can be used as a basis for writing or reviewing entries in a proposal:

SOW: "The contractor shall document all software support information, and all changes thereto, developed wholly or partly with Government funds."

CDRL Block 16 entries (ACCESS): "Copies of the [*cite specific types, if possible, for example.* firmware support manuals and operators' manuals], and their revisions and associated metadata, shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* firmware support manuals and operators' manuals] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to these [*cite specific types, for example.* firmware support manuals and operators' manuals] and their revisions and associated metadata shall be provided starting [*specify appropriate milestone, for example.* not later than 30 days after award of this contract] and for a period not less than [*specify period, for*

example. ten years] after delivery of the last production unit. The [*cite specific types, for example.* firmware support manuals and operators' manuals] and associated metadata shall be compatible with the interface format requirements of the Software-Documentation DIP of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "Copies of the [*cite specific types, if possible, for example.* firmware support manuals and operators' manuals] and associated metadata shall be delivered starting [*specify appropriate milestone, for example.* not later than 30 days after award of this contract], starting [*specify appropriate milestone, for example.* not later than 30 days after award of this contract]. Revisions and associated metadata shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA. The [*cite specific types, for example.* firmware support manuals and operators' manuals] shall be available in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*cite specific types, for example.* firmware support manuals and operators' manuals] and associated metadata shall be delivered in accordance with the interface format requirements of the Software-Documentation DIP of AMC-STD-2549."

A.4.3.2 DIPs associated with Other Product Related Documents (general documents, technical manuals and supplements)

A.4.3.2.1 Selection and tailoring of general documents including tech manuals [General-Document and Technical-Manual DIPs].

General documents include quality assurance provisions, packaging instructions, safety data sheets, plans, procedures, analyses, books, and technical manuals, which are required by the Government for any reason and which are not covered by more specific DIPs addressed elsewhere in this appendix. Some of the types of documents in this category (such as design analyses and technical manuals) can be required during any phase of a program; others (such as verification procedures or reports) are only important during a single phase. The SOW and CDRL entries you provide should address updates of documents that are continuing while also addressing indexing and archiving of documents that may be needed as references at some time in the future. General documents will be obtained via a content DID for that type of document, if one exists. Otherwise, the documents would be obtained in the originating organization's format using DI-CMAN-81588. [See DoD 5010.12-L, Acquisition Management and Data Requirements Control List (AMSDL) for existing DIDs for the documents.]

A.4.3.2.1.1 PD&RR phase.

During the system definition stage and the early part of the allocated performance definition stage of this phase, the system performance specification, top-level CI performance specifications, and various interface and design Drawings are derived from the program/project needs documentation. The availability of the specifications and Drawings is provided through the Drawing and Specification DIPs, but various systems engineering documentation (such as tradeoff studies; risk, cost, and performance analyses; and simulation results) will be generated that the Government may also want to review/analyze. Contractor plans for the program/project (such as system engineering plans and logistics support plans) may also be of interest to the Government. Also, if a competitive prototype performance "test off" will be a part of this phase, the Government may be interested in reviewing the test procedures and test results. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document, index, and archive all planning, analysis, and tradeoff study information, including changes thereto, for the system and for the configuration items."

CDRL Block 16 entries [ACCESS]: "Copies of the [*specify the type(s) of documents involved, if possible, for example.* system design analyses] and revisions and associated metadata shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. Accessible copies of the [*specify the type(s) of documents involved, for example.* system design analyses] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*specify the type(s) of documents involved, for example.* system design analyses] and their revisions and associated metadata shall be provided starting [*cite appropriate milestone, such as:* with the release/approval of the first design analysis] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*specify the type(s) of documents involved, for example.* system design analyses]and associated metadata shall be compatible with the interface format requirements of the General-Document DIP of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Copies of the [*specify the type(s) of documents involved, if possible, for example.* system design analyses] and revisions and associated metadata shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA, starting [*cite appropriate milestone, such as:* with the release/approval of the first design analysis]. Deliverable copies of the [*specify the type(s) of documents involved, for example.* system design analyses] shall be provided in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*specify the type(s) of documents involved, for example.* system design analyses] and

associated metadata shall be delivered in accordance with the interface format requirements of the General-Document DIP of AMC-STD-2549."

A.4.3.2.1.2 EMD phase.

During the latter part of the allocated performance definition stage and as a part of the design definition stage of this phase, the top-level CI performance specifications are refined and approved, the lower-level CI performance specifications are generated and approved, and the interface and design Drawings and the production documentation are finalized. This part of the development process also includes a number of design reviews, a prolonged period of verification testing, and (at least) a functional configuration audit. The availability of the specifications and Drawings is provided through the Specification and Drawing DIP, but various systems engineering documentation (such as tradeoff studies; risk, cost, and performance analyses; and simulation results) will be generated that the Government may also want to review/analyze. As a part of the verification testing, various plans, procedures, and compilations of results/analyses will be generated that the Government may also want to review/analyze. Also, documentation that will be used to support the product (such as technical manuals) will be generated; the Government may also want to review/analyze those documents that will be used by Government (or other contractor) personnel as they perform some of the logistics support activities for the product. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document, index, and archive all planning, analysis, and tradeoff study information, including changes thereto, relating to the development, test, production, operation, and support of the system and the configuration items."

CDRL Block 16 entries [ACCESS]: "Copies of the [*specify the type(s) of documents involved, possible, for example.* software test procedures] and revisions and associated metadata shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. Accessible copies of the [*specify the type(s) of documents involved, for example.* software test procedures] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*specify the type(s) of documents involved, for example.* software test procedures] and their revisions and associated metadata shall be provided starting [*cite appropriate milestone, such as:* with the release/approval of the first test procedure] for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*specify the type(s) of documents involved, for example.* software test procedures] and associated metadata shall be compatible with the interface format requirements of the General-Document DIP of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Copies of the [*specify the type(s) of documents involved,if possible, for example.* software test procedures] and revisions and associated metadata shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA, starting [*cite appropriate milestone, such as:* with the release/approval of the first test procedure]. Deliverable copies of the [*specify the type(s) of documents involved, for example.* software test procedures] shall be provided in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*specify the type(s) of documents involved, for example.* software test procedures]and associated metadata shall be delivered in accordance with the interface format requirements of the General-Document DIP of AMC-STD-2549."

A.4.3.2.1.3 Production, fielding/deployment, and operational support including demilitarization and disposal.

During both the production and the post-production stages of this phase, the main type of information of interest to the Government is the support documentation (such as technical manuals) being used by Government personnel or other contractor personnel to maintain the product). The Government may want to review/analyze those documents. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document, index, and archive all logistics support information and documentation, including changes thereto, for the system and the configuration items."

CDRL Block 16 entries [ACCESS]: "Copies of the [*specify the type(s) of documents involved, if possible, for example.* technical manuals] and revisions and associated metadata shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved or released by the contractor CDCA. Accessible copies of the [*specify the type(s) of documents involved, for example.* technical manuals] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to the [*specify the type(s) of documents involved, for example.* technical manuals] and their revisions and associated metadata shall be provided starting [*cite appropriate milestone, such as:* with the release/approval of the first technical manual] and for a period not less than [*specify period, for example.* ten

years] after delivery of the last production unit. The [*specify the type(s) of documents involved, for example.* technical manuals] and associated metadata shall be compatible with the interface format requirements of the Technical-Manual DIP of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Copies of the [*specify the type(s) of documents involved, if possible, for example.* technical manuals] and revisions and associated metadata shall be delivered not later than [*cite time period, for example.* 10 working days] after they have been approved or released by the contractor CDCA, starting [*cite appropriate milestone, such as:* with the release/approval of the first technical manual]. Deliverable copies of the [*specify the type(s) of documents involved, for example.* technical manuals] shall be provided in [*specify applicable electronic format, for example.* Adobe Acrobat] format. The [*specify the type(s) of documents involved, for example.* technical manuals] and associated metadata shall be delivered in accordance with the interface format requirements of the Technical-Manual DIP of AMC-STD-2549."

A.4.3.2.2 Selection and tailoring of document supplements [Document-Supplement DIP].

Document supplements are used during any phase to prevent the necessity and cost of re-distributing an entire paper document (such as a specification) when only a portion of the document has changed and to expedite the distribution of changes to a document when paper is the primary medium. As a result, complex tiered systems of identifying changes to revisions, notices to revisions, and supplements to changes. have been developed. They are treated as a separate category only because of these specialized identification requirements. Document supplements are also used (especially in the Post-production Operations and Support stage of design maturity) when the information defined by a contractor-controlled paper or electronic document (such as a Drawing or a technical manual) needs to be updated to reflect a change generated by a design activity other than the CDCA for the document. Supplements include changes to revisions of Government technical manuals; addenda to commercial technical manuals; routine, operational, safety, and page supplements to Government technical manuals; specification (page) change notices to program-unique specifications; and altered item Drawings to supplement existing contractor-controlled Drawings. Document supplements are typically obtained via a CDRL citing a DID for the supplement, a DID for the basic document, or DI-CMAN-81588 if no other appropriate DID exists. [See DoD 5010.12-L, Acquisition Management and Data Requirements Control List (AMSDL) for existing DIDs for the documents.] There will be very little, if any, difference in the SOW taskings and in the CDRL entries from phase to phase; the primary difference would be the use of delivery of paper supplements during most phases while access to electronic supplements will apply mainly to the post-production time frame. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal:

SOW: "The contractor shall document all changes to paper documents which define mandatory functional, performance, interface, and design requirements for parts, materials, processes, or practices used in/with the system and the configuration items."

CDRL Block 16 entries [ACCESS]: "Originals of the [*cite types, if possible, for example.* specification change notices], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] within [*specify period of time, for example.* 7 days] after Government approval. Both prior to and after this transfer of CDCA responsibility, copies of the [*cite types, for example.* specification change notices] and associated metadata shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved by the CDCA. Originals of the [*cite types, for example.* specification change notices] shall be compatible with conversion to [*specify applicable electronic format, for example.* WORD 2000] format; accessible copies of the [*cite types, for example.* specification change notices] shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to these [*cite types, for example.* specification change notices] and their revisions and associated metadata shall be provided starting [*cite appropriate milestone, such as:* with the signing of this contract] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The [*cite types, for example.* specification change notices] and associated metadata shall be compatible with the interface format requirements of Document-Supplement DIP of AMC-STD-2549."

CDRL Block 16 entries [DELIVERY]: "Originals of the [*cite types, if possible, for example.* specification change notices], including all rights as the CDCA, shall be placed under control of [*name of Government organization*] and delivered in [*specify applicable format, for example.* paper, WORD 2000] format within [*specify period of time, for example.* 7 days] after Government approval of the related ECP. The [*cite types, for example.* specification change notices] and associated metadata shall be compatible with the interface format requirements of Document-Supplement DIP of AMC-STD-2549."

A.4.3.3 DIPs associated with Part and Part Relationship [Products and Product Structure].

A.4.3.3.1 Selection and tailoring associated with basic part identification information [Part DIP].

This basic information about parts and materials is used to aid those responsible for sustainment of the operational inventory of a product to plan for maintenance actions and for spare parts procurements. It is mainly needed as the project enters the production, deployment, operation and support life-cycle phase, although there is some use of the information as we evaluate the evolving design during development. Under acquisition reform, the primary concern is to document the installed assemblies/parts in the delivered units which will be procured/supported by a Government organization or by a commercial organization other than the original manufacturer. There is also a need to have information about equivalent/substitute parts (especially those already in the DoD inventory) that can be used in maintenance actions; however, this information also is needed where the contractor assigns Part identifiers which are used internal to the company, even though there are suitable Government-assigned identifiers for the Parts. The basic parts information is usually obtained as a part of the design documentation (Drawings, specifications, or standards) for the product, so it is not always necessary to order this information separately. However, if the design documentation (especially the Drawings) is not being ordered, but Government support of the product is planned, then this information should be ordered for those parts to be supported by the Government. The information about the equivalent parts should be ordered for those parts to be supported by the Government; it is not provided with the design documents. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal for work in the production, fielding/deployment, operation, and support, including demilitarization and disposal phase (samples for PD&RR and EMD phases are not provided):

SOW: "The contractor shall document all information about parts and materials, about alternative identifiers for identical/equivalent Parts, and about all changes thereto, for which an organization other than the manufacturer will be purchasing spares and/or maintaining them."

CDRL Block 16 entries (ACCESS): "The information on designated parts and materials (and of equivalent/alternative/substitute parts and materials) shall be accessible not later than [*cite time period, for example.* 3 working days] after they have been approved by the CDCA. Access to this and its revisions shall be provided starting [*cite appropriate milestone, such as:* with the signing of this contract] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. The information shall be compatible with the interface format requirements of the Part DIP of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "The information on designated parts and materials (and of equivalent/alternative/substitute parts and materials) shall be delivered not later than [*cite time period, for example.* 30 calendar days] after signing of the contract. Revisions to this information shall be delivered [*cite submittal frequency, for example.* monthly] incorporating CDCA approval actions accomplished up to [*cite time period, for example.* 3 working days] before the submittal date of the updated listing. The information shall be delivered in accordance with the electronic interface format requirements of the Part DIP of AMC-STD-2549."

A.4.3.3.2 Selection and tailoring associated with as-built/as-delivered configuration and changes to fielded items [Part-Relationship DIP].

This information is the core information necessary for configuration management of fielded assets. It normally involves the generation of a discrete record for each manufactured unit (or lot) that is first created during manufacture of the unit/lot, including a record of traceability identifiers for installed Parts and reference to any approved deviations included in the unit/lot. The record is used throughout the remainder of the product life cycle to identify the precise components of any assembly as various maintenance and modifications activities are accomplished, to assist in identifying failure trends and determine the causative factors for such trends, and to allow for inventory control of assets including recall or demilitarization of defective or obsolete units. It is also used by operations to assign assets to specific missions. If obtained from the contractor, As-maintained/As-modified records should not be ordered unless the As-built/As-delivered records are obtained, and neither should be ordered unless the basic parts traceability information (Part DIP) is ordered. [Many DoD services and organizations have existing information systems to track the maintenance and modification actions on items they maintain, so it may be necessary to obtain only the as-built/as-delivered information from the contractor.] As-built/as-delivered configuration information and records of changes to fielded items are typically obtained via DI-CMAN-81588 in the CDRL. This type of information is sometimes required during development to track test prototypes and would be even more likely if those prototypes were intended to enter the operational inventory. However, this as-built/as-delivered/as-maintained information is most commonly generated/required during the production, fielding/deployment, operation, and support phase (including demilitarization and disposal); the following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal for work in that phase:

SOW: "The contractor shall record as-built/as-delivered information, and all changes thereto, about parts and materials which are safety, health, or mission critical or for which an organization other than the manufacturer will be purchasing spares and/or maintaining them." [*Optional additional task if Government doesn't keep track of maintenance/modification information:* "Information about maintenance and retrofit/modification actions completed on these tracked items shall also be recorded."]

CDRL Block 16 entries (ACCESS): "The as-built/as-delivered information on parts and materials in each deliverable unit shall be accessible not later than [*cite time period, for example.* 3 working days] after completion of the manufacture of the new unit. [*If maintenance/modification information is obtained from the contractor, include:* Updates to this information to reflect accomplishment maintenance actions and approved retrofits/modifications shall be accessible not later than [*cite time period, for example.* 3 working days] after completion of the maintenance or retrofit action.] Access to these listings [*if maintenance/modification information is obtained from the contractor, include:* and their updates] shall be provided starting [*cite appropriate milestone, such as:* with the delivery of the first unit] and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. This information listings shall be compatible with the electronic interface format requirements of the Part Relationship DIP of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "The as-built/as-delivered information on parts and materials in each deliverable unit shall be delivered not later than [*cite time period, for example.* 10 working days] after completion of the manufacture of the new unit, starting [*cite appropriate milestone, such as:* with the delivery of the first unit]. [*If maintenance/modification information is obtained from the contractor, include:* Updates to this information to reflect accomplishment maintenance actions and approved retrofits/modifications shall be delivered [*cite submittal frequency, for example.* monthly] incorporating all maintenance and retrofit actions accomplished up to [*cite time period, for example.* 3 working days] before the submittal date of the updated listing.] Submittal of this information shall start [*cite time period, for example.* 30 days] after award of this contract. The information shall be in accordance with the electronic interface format requirements of the Part Relationship DIP of AMC-STD-2549."

A.4.3.4 DIPs associated with Configuration Control information (Engineering Change Proposals, Notices of Revision, and Requests For Deviation).

A.4.3.4.1 Selection and tailoring associated with Engineering change proposals [Engineering-Change-Proposal DIP], including Notices of Revision [Notice-Of-Revision DIP].

Engineering change proposals (ECPs) document proposed changes in the requirements or design of an item for which the Government is the CDCA. [Where a document change is required, the ECP will include Notice of Revision (NOR) information or will have the NOR(s) attached.] ECPs provide a vehicle for dissemination of change impact information and for obtaining comments/coordination of the proposed changes from all interested parties. If the change has a priority of emergency, this processing must be accomplished very expeditiously; it is not unusual for a message-type ECP to be used in this case to reach a decision, authorize the change as quickly as possible, and follow it up with a formal ECP to completely describe and contractually incorporate the change. If the proposed change will have a routine priority, it is not unusual for the Government to request brief preliminary ECPs (formerly called Advanced Change Study Notices or Modification Requests) as a vehicle for authorizing/avoiding the cost/work effort involved in preparing a formal ECP; the change would be authorized only if the formal ECP is approved. ECPs are used during all phases to propose, justify, and coordinate a change to the functional, performance, interface and/or design requirements for an item as documented in the program-unique system performance and/or CI performance specification(s) and/or CI detail specification(s)/engineering Drawings for which the Government is the CDCA. (Before the Government is the CDCA, the contractor has that responsibility along with change control responsibility and should generate/process change documents (which may be ECPs) internally before changes are made to the contractor-controlled documents. If CDCA continues to reside with the contractor during the production/deployment phase, the Government may want to receive copies of the approved NORs.) The timing for the transfer of CDCA responsibility to the Government is key to the Government's requirement for ECPs:

a. The Government CDCA for the system specification (functional baseline), or for the highest top-level CI performance specification (functional/allocated baseline), for the program/project will normally start near the end of the PD&RR phase. After that time, Class I ECPs will be needed to facilitate Government CDCA decisions about changes to those documents.

b. The Government CDCA for the top-level CI performance specifications (allocated baselines) will normally start early in the EMD phase. After that time, Class I ECPs will be needed to facilitate Government CDCA decisions about changes to those documents.

c. The Government CDCA for the lower-level CI performance specifications (allocated baselines) will normally start with the completion of the FCA for the hosting top-level CI. After that time, Class I ECPs will be needed to facilitate Government CDCA decisions about changes to those documents.

d. If the Government will control some/all of the CI design documentation, the Government CDCA for the CI detail specification (product baseline), including the related technical data package, will normally start near the beginning of the

production, fielding/deployment and operational support phase with the completion of the PCA for each CI. After that time, Class I and Class II ECPs will be needed to facilitate Government CDCA decisions about changes to those documents.

While the documentation subject to Government control changes over the life cycle, the SOW taskings and the CDRL requirements are always basically the same. ECPs are typically obtained via DID DI-CMAN-81588 in the CDRL. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal for work in all phases:

SOW: "The contractor shall completely define, describe, and justify all proposed changes to specifications and other baseline documentation under Government CDCA control. [*If Government can only accept or reject contractor-CDCA changes, this sentence should read:* Contractor shall not deliver any units incorporating the change to the Government until notified of Government acceptance of the change.]"

CDRL Block 16 entries (ACCESS): "As required, or as directed by the Government contracting officer, copies of Engineering Change Proposals and related Notices of Revision, as applicable and associated metadata shall be accessible not later than [*cite time period, for example.* 24 hours] after release/approval by the contractor's CCB. ECPs and NORs shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to all current and archived ECPs, NORs and associated metadata shall be provided starting with the delivery of the first ECP and for a period not less than [*specify period, for example.* ten years] after delivery of the last production unit. ECPs, NORs and associated metadata shall be compatible with the interface format requirements of the Engineering-Change-Proposal and NOR DIPs of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "As required, or as directed by the Government contracting officer, Engineering Change Proposals and related Notices of Revision, as applicable, and associated metadata shall be delivered not later than [*cite time period, for example.* 7 days] after release/approval by the contractor's CCB. ECPs and NORs shall be delivered in [*specify applicable electronic format, for example.* Adobe Acrobat] format. ECPs, NORs and associated metadata shall be delivered in accordance with the interface format requirements of the Engineering-Change-Proposal and Notice-Of-Revision DIPs of AMC-STD-2549."

A.4.3.4.2 Selection and tailoring associated with requests for deviation [Request-For-Deviation DIP].

Requests for deviation are used to document variations between a deliverable unit(s) of the product and the contractual requirements in the Government-controlled baseline document(s). They are used by a performing activity to request that a tasking activity allow a limited effectively (affecting one or a few units) change to deliverable hardware or software. (see EIA 649 for additional guidance). The intent is that the discrepancy documented in the RFD will be corrected in the contractor's manufacturing process as soon as possible so that only a minimum number of units include the discrepancy. (Engineering change proposals (ECPs) are approved to include a new, preferred configuration into ALL future units. RFDs provide a vehicle for dissemination of the impact information and for obtaining comments/coordination about the proposed RFD from all interested parties. (If the change has a "priority" of critical, the impacts must be assessed very carefully; usually, there would be impact on the operation or maintenance of the unit which should result in automatic disapproval of the RFD.) RFDs should always be accompanied by an offer of consideration for Government acceptance of the RFD. RFDs may be used during all phases to propose, justify, and coordinate a discrepancy, but they are most applicable to the Production, fielding/deployment, and operation and support phase. (Deviations may be used during EMD to accept early test articles that do not conform completely to the applicable performance specification requirements.) The timing for the transfer of CDCA responsibility to the Government is key to the Government's requirement for RFDs. While the documentation subject to Government control changes over the life cycle, the SOW taskings and the CDRL requirements are always basically the same. RFDs are typically obtained via DID DI-CMAN-81588 in the CDRL. The following sample SOW tasks and CDRL remarks can be used as a basis for writing, or reviewing, entries in a proposal for work in all phases:

SOW: "The contractor shall completely define, describe, and justify all departures from specifications and other baseline documentation under Government CDCA control. Contractor shall not deliver a unit incorporating the discrepancy until notified of Government CDCA approval. [*If Government can only accept or reject contractor-CDCA RFDs, this sentence should read:* Contractor shall not deliver any units incorporating the discrepancy to the Government until notified of Government acceptance of the discrepancy.] The contractor shall propose suitable consideration for Government acceptance of the RFD."

CDRL Block 16 entries (ACCESS): "As required, or as directed by the Government contracting officer, copies of Requests for Deviation and associated metadata shall be accessible not later than [*cite time period, for example.* 24 hours] after release/approval by the contractor's CCB. Accessible copies of RFDs shall be compatible with conversion to [*specify applicable electronic format, for example.* Adobe Acrobat] format. Access to all current and archived RFDs and associated metadata shall be provided starting with the delivery of the first RFD and for a period not less than [*specify period, for*

example. ten years] after delivery of the last production unit. RFDs and associated metadata shall be compatible with the interface format requirements of the Request-For-Deviation DIP of AMC-STD-2549."

CDRL Block 16 entries (DELIVERY): "As required, or as directed by the Government contracting officer, Requests for Deviation and associated metadata shall be delivered not later than [*cite time period, for example.* 7 days] after release/approval by the contractor's CCB. RFDs shall be delivered in [*specify applicable electronic format, for example.* Adobe Acrobat] format. RFDs and associated metadata shall be compatible with the interface format requirements of the Request-For-Deviation DIP of AMC-STD-2549."

A.5. OTHER DATA ACQUISITION CONSIDERATIONS.

A.5.1 Continuous Acquisition and Life-Cycle Support (CALS) implementation.

The following paragraphs provide guidance on acquiring data products in digital form:

A.5.1.1 Department of Defense policy.

DoD Regulation 5000.2-R states that technical data will be prepared, delivered and used in digital form unless it is not cost-effective for the Government. In addition, maximum use should be made of available contractor automated data bases.

A.5.1.2 Implementation.

Defense Acquisition Deskbook, Continuous Acquisition and Life-Cycle Support (CALS) Program Implementation Guide, provides information and guidance to personnel responsible for the acquisition and use of weapon system technical data. Its purpose is to assist in the transition from paper-intensive processes to digital data delivery and access. In addition to MIL-HDBK-59, Government personnel acquiring data should consult Service or Agency and Command regulations, directives and instructions for additional information on specifying the delivery of data in digital form.

A.5.2 Data requirements versus work tasks.

Contractual data requirements cannot be used to impose design requirements on the item being procured, or to impose engineering work tasks on the contractor. Such tasks are identified in the Statement of Work of the contract or purchase order, or in a design requirements specification.

A.5.3 Previous submission.

Government activities acquiring this information should tailor the delivery and submission requirements for the information to avoid unnecessary charges to the Government resulting from duplicate delivery of data products.

A.6. NOTES.

This section is not applicable to this standard.